

Amendments to the Claims

1-19. (Cancelled)

20. (New) A method comprising:

conveying a multicast-join message respectively from each of a plurality of mobile stations, via a base transceiver station (BTS) and base station controller (BSC) serving the mobile station, to a network entity;

for each respective multicast-join message being conveyed via a given BTS or BSC, the given BTS or BSC adding to the multicast-join message an indication of which cell sector is currently serving the mobile station, so that the network entity receives the cell sector indication when the first entity receives the multicast-join message; and

using the cell-sector indications added into the multicast-join messages as a basis to route multicast messages from the network entity to the mobile stations.

21. (New) A method comprising:

conveying a multicast-join message respectively from each of a plurality of mobile stations, via a base transceiver station (BTS) and base station controller (BSC) serving the mobile station, to a first network entity;

for each respective multicast-join message being conveyed via a given BTS or BSC, the given BTS or BSC adding to the multicast-join message an indication of which cell sector is

currently serving the mobile station, so that the first network entity receives the cell sector indication when the first entity receives the multicast-join message;

using the cell-sector indications added into the multicast-join messages as a basis to record at the first network entity one or more cell sectors that are currently serving the plurality of mobile stations; and

receiving into the first network entity at least one multicast message, and using the record as a basis to send the at least one multicast message from the first network entity to only the one or more cell sectors indicated by the record, for air interface transmission of the at least one multicast message in turn to the mobile stations.

22. (New) The method of claim 21, further comprising:

providing each of the mobile stations with a key that enables the mobile station to receive and process multicast messages.

23. (New) The method of claim 22, further comprising:

receiving into each mobile station the multicast message sent from the first network entity, and processing the received multicast message at each mobile station.

24. (New) The method of claim 22, further comprising:

receiving into a second network entity a multicast registration request from at least one of the mobile stations; and

determining that the at least one mobile station is authorized, and responsively sending the key to the at least one mobile station.

25. (New) The method of claim 21, wherein the first network entity is communicatively linked to the BSC and is further communicatively linked with the BSC and with a packet-network gateway.

26. (New) The method of claim 21, wherein the at least one multicast message is an IP message.

27. (New) The method of claim 21, wherein at least one of the mobile stations is a 3G mobile station.

28. (New) The method of claim 21, further comprising maintaining at the first network entity a correlation between a multicast IP address and the one or more cell sectors identified by the record.

29. (New) The method of claim 21, further comprising:
for each cell sector in identified by the record, periodically determining whether one or more of the mobile stations is still being served by the cell sector.

30. (New) The method of claim 29, further comprising:

removing a given cell sector from the record if the determination is that none of the mobile stations are being served by the given cell sector.

31. (New) The method of claim 21, wherein at least one of the mobile stations is at least a 3G mobile station.

32. (New) A radio network multicast server (RNMS) comprising:
a processor;
memory; and
program logic in the memory and executable by the processor to perform functions including:

receiving a multicast-join message respectively from each of a plurality of mobile stations, wherein each multicast-join message is conveyed via a base transceiver station (BTS) and base station controller (BSC) serving the mobile station from which the multicast-join message is conveyed, and wherein the BTS or BSC adds to the multicast-join message an indication of which cell sector is currently serving the mobile station, so that the RNMS receives the cell sector indication when the RNMS receives the multicast-join message;

using the cell-sector indications as a basis to record in the memory one or more cell sectors that are currently serving the plurality of mobile stations; and

routing at least a given multicast message to only the cell sectors indicated by the record, for air interface transmission of the at least one multicast message in turn to the mobile stations.

33. (New) The RNMS of claim 32, further comprising:

at least one multicast address stored in the memory and correlated in the memory with the one or more cell sectors identified by the record,

wherein the given multicast message is addressed to the multicast address, and wherein the RNMS uses the record to determine the one or more cell sectors to which the RNMS should send the given multicast message.

34. (New) A system comprising:

a radio network comprising a base transceiver station (BTS) and a base station controller (BSC), the BTS radiating to define one or more cell sectors in which mobile stations can engage in air-interface communication with the BTS, and the BSC being communicatively linked with a packet-switched network; and

a radio network multicast server (RNMS) communicatively linked with the BSC and with the packet-switched network,

wherein the RNMS receives multicast-join messages conveyed from the mobile stations via the BTS and BSC, and wherein the BTS or BSC adds to each multicast-join message being conveyed to the RNMS an indication of which cell sector is currently serving the mobile station from which the multicast-join message is being conveyed,

wherein the RNMS uses the cell sector indications as a basis to compile a record of one or more cell sectors that are currently serving the mobile stations, and

wherein the RNMS uses the record as a basis to route at least one multicast message to only the sectors serving the mobile stations.

35. (New) The system of claim 34, wherein the RNMS receives the at least one multicast message from the packet-switched network, and wherein the at least one multicast message is destined to a multicast IP address.

36. (New) The system of claim 35, wherein the RNMS further correlates the multicast IP address with the cell sectors indicated in the record.

37. (New) The system of claim 34, further comprising a multicast session manager (MSM) accessible via the packet-switched network, wherein the MSM receives from at least one of the mobile stations a multicast registration request, the MSM determines that the at least one mobile station is authorized, and the MSM responsively sends to the at least one mobile station a key that enables the at least one mobile station to receive and process multicast messages.

38. (New) The system of claim 34, further comprising:
a multicast application server (MAS) on the packet-switched network, where the at least one multicast message is transmitted from the MAS.